What is claimed is:

1. An electrical power plant, comprising:

a fuel cell comprising a first reactant inlet and a first outlet; and

a first reactant recycle system comprising a separator, said separator comprising a separator inlet, wherein said first outlet of said fuel cell is fluidly interconnectable with said separator inlet, wherein said separator further comprises a first separator outlet fluidly interconnectable with said first reactant inlet of said fuel cell and a second separator outlet fluidly interconnectable with said separator inlet, wherein a flow out of said separator through said second separator outlet returns to said separator inlet without progressing through said fuel cell.

2. The electrical power plant of Claim 1, wherein said fuel cell is a polymer electrolyte membrane fuel cell.

3. The electrical power plant of Claim 1, further comprising means for selectively preventing fluid communication from said first outlet of said fuel cell to said separator inlet.

4. The electrical power plant of Claim 1, further comprising means for selectively preventing fluid communication from said second separator outlet to said separator inlet.

5. The electrical power plant of Claim 1, wherein said separator comprises an anode, a cathode and a solid electrolyte.

6. The electrical power plant of Claim 5, wherein said solid electrolyte is selected from the group consisting of a polymer, a fluoropolymer, a ceramic, and a metal oxide.

7. The electrical power plant of Claim 5, wherein said separator further comprises a secondary electrical power source.

8. The electrical power plant of Claim 1, further comprising a first flowpath from said first outlet of said fuel cell to said separator inlet, a second flowpath from said first separator outlet to said first reactant inlet, and a third flowpath from said second separator outlet back to said separator inlet, wherein said second and third flowpaths are different, and wherein said third flowpath bypasses said fuel cell.

9. The electrical power plant of Claim 1, wherein said first reactant recycle system further comprises an accumulator disposed between said first outlet of said fuel cell and said separator.

10. The electrical power plant of Claim 9, wherein said first reactant recycle system further comprises a first conduit extending from said first outlet of said fuel cell to said separator inlet, a second conduit extending from said second separator outlet and fluidly interconnectable with said first conduit, and a first valve disposed at a first intermediate location along said first conduit between said first outlet of said fuel cell and where said

second conduit fluidly connects with said first conduit, wherein said accumulator is disposed at a second intermediate location along said first conduit.

11. The electrical power plant of Claim 1, wherein said first reactant recycle system further comprises a pump fluidly interconnected with said second separator outlet, a first flowpath fluidly interconnectable with a discharge of said pump and extending to a second reactant inlet of said fuel cell, and a second flowpath fluidly interconnectable with said discharge of said pump and extending back to said separator inlet, wherein said second flowpath bypasses said fuel cell.

12. The electrical power plant of Claim 11, wherein said first reactant recycle system further comprises means for selectively directing said discharge from said pump to one of said first and second flowpaths.

13. The electrical power plant of Claim 1, wherein said fuel cell further comprises a second reactant inlet and a second outlet.

14. The electrical power plant of Claim 13, further comprising a first reactant source fluidly interconnectable with said first reactant inlet, as well as a second reactant source fluidly interconnectable with said second reactant inlet.

15. The electrical power plant of Claim 14, wherein said first reactant source comprises a fuel and said second reactant source comprises an oxidizer.

16. The electrical power plant of Claim 13, wherein said electrical power plant further comprises a second reactant recycle system comprising a first recovery chamber and a second recovery chamber, wherein said second reactant recycle system is fluidly interconnectable with said second outlet of said fuel cell.

17. The electrical power plant of Claim 16, wherein said first recovery chamber comprises a first chamber inlet, a first chamber gas outlet fluidly interconnectable with said second reactant inlet, and a first chamber liquid outlet, wherein said second outlet of said fuel cell is fluidly interconnectable with said first chamber inlet.

18. The electrical power plant of Claim 17, wherein said second recovery chamber comprises a second chamber inlet, a second chamber gas outlet fluidly interconnectable with said first chamber inlet, and a second chamber liquid outlet, wherein said first chamber liquid outlet is fluidly interconnectable with said second chamber inlet.

19. An electrical power plant, comprising:

a fuel cell comprising a first reactant inlet and a first outlet;

a first reactant recycle system comprising a separator, said separator comprising a separator inlet, a first separator outlet, and a second separator outlet;

a first flowpath from said first outlet of said fuel cell to said separator inlet;

a second flowpath from said first separator outlet to said first reactant inlet; and

a third flowpath from said second separator outlet to said separator inlet that bypasses said fuel cell.

20. A method of generating electrical power, comprising the steps of:

providing a first reactant feed to a fuel cell;

generating electrical power using said providing a first reactant feed step;

directing a first exit stream out of said fuel cell to a separator;

separating at least a portion of a first reactant from said first exit stream to produce a first separated reactant stream;

directing said first separated reactant stream out of said separator; and

recycling a portion of said first exit stream through said separator without passing through said fuel cell for a continued execution of said separating step.

21. The method of Claim 20, wherein said first reactant feed comprises a fuel.

22. The method of Claim 21, wherein said first reactant feed comprises hydrogen.

23. The method of Claim 20, wherein said first reactant feed comprises an oxidizer.

24. The method of Claim 23, wherein said first reactant feed comprises oxygen.

25. The method of Claim 24, wherein said first reactant feed comprises air.

26. The method of Claim 20, further comprising step of combining said separated reactant stream with said first reactant feed.

27. The method of Claim 20, wherein said first exit stream comprises inert gases.

28. The method of Claim 27, wherein said first reactant comprises hydrogen.

29. The method of Claim 28, wherein said separator comprises an anode, a cathode and a solid electrolyte, and wherein said separating step comprises transporting said hydrogen from said anode through the solid electrolyte to said cathode.

30. The method of Claim 27, wherein said first reactant comprises oxygen.

31. The method of Claim 30, wherein said separator comprises an anode, a cathode and a solid electrolyte, and wherein said separating comprises transporting said oxygen from said cathode through the solid electrolyte to said anode.

32. The method of Claim 20, further comprising the step of terminating said directing a first exit stream step, wherein said recycling step is executed after said terminating step.

33. The method of Claim 20, further comprising the step of providing a second reactant feed to said fuel cell, wherein said generating electrical power also uses said providing a second reactant feed step.

34. The method of Claim 33, wherein said first reactant feed comprises hydrogen and said second reactant feed comprises oxygen.

35. The method of Claim 33, further comprising the steps of directing a second exit stream out of said fuel cell and recovering at least a portion of a second reactant from said second exit stream.

36. The method of Claim 35, wherein said separating step comprises using a first solid electrolyte, and wherein said recovering step comprises using a second solid electrolyte.

37. The method of Claim 35, wherein said separating step comprises using a solid electrolyte, and wherein said recovering step comprises using at least a first and a second recovery chamber.

38. A method of generating electrical power, comprising the steps of:

providing a first reactant feed to a fuel cell;

generating electrical power using said providing a first reactant feed step;

discharging a first fluid out of said fuel cell;

separating at least a portion of a first reactant from said first fluid in a separator;

discharging said first reactant from said separating step out of said separator; and

directing a first discharge out of said separator and then back into said separator without progressing through said fuel cell for a continued execution of said separating step.

39. The method of Claim 38, further comprising step of directing said first reactant from said separating step back into said fuel cell for use by said generating step.

40. The method of Claim 38, further comprising step of terminating said discharging a first fluid step associated with said fuel cell, wherein said directing a first discharge step associated with said separator is executed after said terminating step.

41. The method of Claim 38, further comprising step of directing a second discharge out of said separator after a termination of said separating step.

42. The method of Claim 41, wherein said second discharge comprises inerts.

43. The method of Claim 41, further comprising the step of disposing of said second discharge.

44. The method of Claim 41, further comprising the step of using said second discharge in relation to said generating step.

45. An electrical power plant comprising:

a fuel cell comprising a fuel inlet, an oxidizer inlet, a fuel outlet and an oxidizer outlet; and

a first reactant recycle system comprising:

a fuel accumulator, wherein said fuel outlet is fluidly interconnectable with said fuel accumulator;

a fuel separator comprising a fuel separator inlet fluidly interconnectable with said fuel accumulator, a first fuel separator outlet fluidly interconnectable with said fuel inlet, and a second separator outlet; and

a mechanical pump comprising a pump inlet and a pump outlet, wherein said second separator outlet is fluidly interconnectable with said pump inlet and said pump outlet is fluidly interconnectable with said fuel accumulator without progressing through said fuel cell.

46. An electrical power plant, comprising:

a fuel cell comprising a first reactant inlet and a first outlet; and

a first reactant recycle system comprising a first recovery chamber and a second recovery chamber fluidly interconnectable with the first recovery chamber, wherein said first recovery chamber comprises a first chamber inlet, a first chamber gas outlet fluidly interconnectable with said first reactant inlet, and a first chamber liquid outlet, wherein said first outlet of said fuel cell is fluidly interconnectable with said first chamber inlet.

47. The electrical power plant of Claim 46, wherein said second recovery chamber comprises a second chamber inlet, a second chamber gas outlet fluidly interconnectable with said first chamber inlet, and a second chamber liquid outlet, wherein said first chamber liquid outlet is fluidly interconnectable with said second chamber inlet.

48. The electrical power plant of Claim 46, wherein said second recovery chamber comprises a second chamber inlet, a second chamber gas outlet fluidly interconnectable with said first reactant inlet, and a second chamber liquid outlet, wherein said first chamber liquid outlet is fluidly interconnectable with said second chamber inlet.